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SNOW SURVEYS AND IRRIGATION WATER FORECASTS

for the

RIO GRANDE DRAINAGE BASIN

April 1, 1940

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United States Department of Agriculture
Soil Conservation Service
Division of Irrigation
In Cooperation with
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Colorado State College
Fort Collins, Colorado

April 6, 1940

THE BOSTONIAN

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RIO GRANDE BASIN

April 1, 1940

The following data pertaining to snow surveys and irrigation water-supply forecasts are provided by the Division of Irrigation, Soil Conservation Service of the U. S. Department of Agriculture, in cooperation with other Federal Bureaus, State Departments, and local organizations. The snow measurements are made principally by field personnel of the U. S. Forest Service and Colorado State Engineer. This work is otherwise conducted cooperatively with the State Engineers of Colorado and New Mexico, Colorado Agricultural Experiment Station, and various municipalities, irrigation associations and others. Precipitation records are supplied by the U. S. Weather Bureau.

PRECIPITATION DATA
(Based on incomplete returns)

WATERSHED	STATE	Precipitation		Departure from Normal		March Inches	Precipitation Inches	Departure from Normal Inches			
		October 1 to March 31		Inches							
Canadian	New Mexico	3.79		-0.14		0.76		+0.02			
Rio Grande	Colorado	6.10		-1.07		0.84		-0.82			
Rio Grande	New Mexico	6.37		-0.01		1.19		-0.02			
Pecos	New Mexico	3.97		-0.30		0.35		-0.42			

SUMMARY OF APRIL 1 SNOW SURVEYS AND COMPARISON OF DATA WITH THAT OF PREVIOUS YEARS BY WATERSHEDS

WATERSHEDS	Snow Depth				Water Content			Number Courses Report- ing 1940	Snow Density	1940 Water Content in percent of 1939
	Five Year		1939 1940		Five Year Avg.*		1940			
	In.	In.	In.	In.	In.	In.	In.			
Rio Grande	22.7	15.2	12.3	7.9	5.4	5.0	22	35	41	63
Canadian River	10.0	1.4	4.9	3.1	0.7	1.8	2	31	50	58

*Some for shorter periods.

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CUTLOOK

Precipitation in New Mexico and in the San Luis Valley in Colorado during March was below normal, and there is also a deficiency in the accumulated precipitation since October 1, 1939. On the watershed of the Rio Grande in Colorado the water content of the snow is less than it was last year at this time, but in New Mexico it is greater. On some of the courses all the snow has already disappeared. The average water content of the snow on all the courses on the watershed of the Rio Grande on April 1 was 5.0 inches; last year it was 5.4 inches and the average on this date for the last five years, is 7.9 inches. On the watershed of the Canadian River, the water content of the snow was 1.8 inches on April 1, this year; 0.7 inches on April 1, 1939; and the average on April 1 for the last four years is 3.1 inches.

The condition of the soil moisture is fair in the San Luis Valley, good in the upper Rio Grande Valley in New Mexico, and normal in the lower valley below the Elephant Butte Dam. In the irrigated sections along the Conchas River, the percentage of moisture in the soil is higher than average for this time of the year. Subsoil moisture is generally deficient.

Reservoir storage in the San Luis Valley is 29 percent of what it was a year ago at this time, but 65 percent of what it was two years ago. The El Vado Reservoir has 22 percent more water in storage than it had on April 1, 1939, and 86 percent of the amount in storage on April 1, 1938. Storage in the Elephant Butte and Caballo reservoirs on April 1 was 67 percent of what it was a year ago and 78 percent of what it was two years ago. The Conchas Reservoir, which was recently completed, now has 84,000 acre-feet in storage. Last year at this time it contained 15,480 acre-feet.

The outlook for irrigation water in the San Luis Valley is not favorable at this time. Unless heavier than normal precipitation occurs during the remainder of the year, the runoff will be considerably less than it was last year. Conditions are more favorable in New Mexico and with normal precipitation from now on, the runoff should be about the same as last year. Although the snow cover on the watershed of the Canadian is more than double what it was last year, it is still considerably less than normal and, consequently, the runoff will probably be short again this year unless supplemented by summer storms.

RIO GRANDE WATERSHED

Summary of Federal and State Cooperative Snow Surveys
Issued April 6, 1940, at Fort Collins, Colo.

Main Drainage and Snow Course	Local Drainage	Location	Elev. Forest	Elev. National Forest	Apr. 1 Snow Course Measurements					
					Av. Snow Depth		Av. Water Content		Av. 1939	
					In.	In.	In.	In.	In.	In.
RIO GRANDE										
26	Wolf Creek Pass	South Fork	Wolf Cr. Pass	4-37N-2E	10000	Rio Grande	81.8	41.0	29.4	23.1
27	Upper Rio Grande	Rio Grande	Rio Grande Res.	13-40N-4W	9250	"	16.8	0.0	15.9	15.9
47	Silver Lakes	Alamosa R.	1mi.S.Silver L.	15-36N-5E	9600	"	17.7	12.0	3.8	0.0
49	River Springs	Conejos R.	10mi.W.Mogote	25-33N-6E	9300	"	23.6	16.4	4.8	0.5
74	LaVeta Pass #2	SanCristo Cr.	LaVeta Pass	22-28S-70W	9300	SanCristoGr	23.1	22.6	6.2	2.0
75	Ute Ridge	Rio Grande	Rio Grande Res.	31-41N-4W	9700	Rio Grande	3.8	0.0	7.7	7.2
76	Summitville	Wightman Cr.	Summitville	30-37N-4E	11500	"	46.8	25.6	38.0	15.2
77	Cumbres Pass #2	Los Pinos R.	Cumbres Pass	17-32N-5E	10000	"	69.0	46.8	40.2	14.0
80	Santa Maria	N. Clear Cr.	Santa Maria Res.	8-41N-2W	9700	"	0.0	0.0	0.0	0.0
82	Culebra	Culebra R.	12mi.E.San Luis	37-2N10S-2W	10000	SanCristoGr	—	—	28.2	2.4
84	Fort Garland	Big Ute Cr.	6mi.N.Ft. Garland	13-29N-72W	8200	"	—	—	—	0.0
1	Red River	Red River	N. Mex.	29-28N-15E	9500	Carson	21.2	12.0	7.0	5.1
2	Taos Canyon	Rio de Taos	10-25N-15E	9000	"	5.1	6.7	4.5	2.4	3.1
4	Aspen Grove	Rio En Medio	10mi.NE.Santa Fe	12-18N-10E	9100	Santa Fe	4.5	2.8	8.5	0.8
5	Lee Ranch	Jemez Cr.	5mi.NW.Bland	3-18N-4E	9050	"	15.5	11.7	11.5	3.4
6	Canjilon	Canjilon Cr.	8mi.NE.Canjilon	4-26N-6E	9500	Carson	47.6	32.4	41.4	4.6
7	Rio Nutrias	Rio Nutrias	10mi.SE.ParkView	6-27N-5E	7900	"	6.2	0.0	20.8	21.1
8	Panchuela	Panchuela Cr.	1mi.N.Cowles	34-19N-12E	8500	Santa Fe	0.6	0.0	0.2	0.0
9	Hematite Park*	Red River	3mi.SE.Red R.	8-28N-15E	9500	Carson	12.4	0.0	5.2	0.0
12	Tres Ritos	Agua Piedra	7mi.W.Holman	23-22N-13E	9000	"	5.1	1.6	9.4	0.6
15	Pay Role	Rock Creek	4mi.SE.Hopewell	16-28N-7E	10000	"	—	12.3	—	4.1
16	Jicarilla	Rock Lake Cr.	15mi.S.Dulce	9-29N-1W	8500	Off Forest	—	0.0	—	0.0
17	Chama Divide	Willow Creek	6mi.W.Chama	36.9N-10S.7W	7750	Jicarilla Res.	—	0.0	—	0.0
						Average for Drainage	22.7	15.2	12.3	5.4
									7.9	5.0
CANADIAN										
9	Hematite Park	Moreno Creek	3mi.Mex.	3mi.SE.Red R.	9500	Carson	12.4	0.0	4.9	1.8
10	Ocate Mesa	Ocate Creek	"	3mi.E.Black L.	9200	Off Forest	7.6	2.9	4.6	1.8
						Average for Drainage	10.0	1.4	4.8	0.7

*On adjacent drainage

*Readings on original course.

